

select a SIP application, the message may also includes a user identification and a password. The Security Module 180 determines if the SIP client is authorized to execute the selected application based on the received user identification and password. In some embodiments, the SIP client and SIP server may use an alternative means of determining if a SIP client has the authority to execute a SIP application and SIP feature that are selected by the SIP client such as a share key or certificate between the SIP client and SIP server.

In some embodiments, the SIP Application Message Routing Module 175 may check with the Security Module 180 to confirm that the SIP client has the authority to execute a SIP application that is selected.

The SIP applications 160 each include a Feature ID Recognition Module 165. Following receipt of the message at the SIP application identified by the SIP application ID, the Feature ID Recognition Module 165 in the SIP application recognizes the SIP feature ID in the message and completes the routing of the message to the SIP feature identified by the SIP feature ID in the message.

In some embodiments, the SIP server includes SIP application configuration information. The SIP application configuration information is stored on the SIP server and may be used by the SIP server to determine which SIP applications and SIP features that the SIP server is hosting.

In some embodiments, the Feature ID Recognition Module 165 may check with the Security Module 180 to

the SIP Application Message Routing Module 175 forwards the message to SIP application 160-1.

In a seventh step S250, the SIP application identified by the SIP application ID in the message receives the message, or portion thereof, and recognizes a feature ID in the message. The SIP application then completes the routing of the message to the identified SIP feature. With reference to Figure 1, the Feature ID Recognition Module 165 recognizes the feature ID in the message and forwards the message to SIP feature 1601-1.

In some implementations, not all of the above steps may be performed. For example, when only SIP applications and SIP features that are authorized to be used on a SIP client are provisioned on the SIP client, step S213, the step of the SIP client user agent confirming that the requested SIP application is allowed to be executed on the SIP client and that the requested feature is authorised for use on the SIP client is not to be performed.

The message sent by the SIP client may include "To" and "From" headers to define a destination address of an end user and a source address of the SIP client, respectively.

In some embodiments, the destination address sent in the message is a SIP uniform resource identifier (URI). In some embodiments the destination address is an email address. Other examples of destination addresses may be a phone number, a name, or any form of identification that the SIP server may translate to an endpoint.

configuration information for SIP applications and SIP features that are authorized, the SIP clients may each include a user identification and a password in a transmitted message to enable authorized access to the SIP server. In some embodiments, the SIP server ensures only authenticated SIP clients are allowed access to the SIP server and/or to ensure that SIP clients are provisioned with only SIP application configuration information for SIP applications and SIP features that are authorized by employing a shared key or certificate. These are merely two examples of security measures that could be used, others security measures are also possible.

The method described above may be used for selecting a SIP application and SIP feature when initiating a SIP session between two SIP enabled devices, such as a SIP client and a SIP server, when managing a SIP session between two SIP enabled devices, or when closing out a session between two SIP enabled devices.

In some embodiments, the message sent by the SIP client user agent is an INVITE message. An INVITE message is used to start a SIP session between two SIP enabled devices, for example the SIP client and SIP server. With reference to the example above, this is a SIP session between SIP Application 115-1 of the SIP client 110 and SIP Application 160-1 and SIP Feature 1-1 of the SIP Server 150.

In some embodiments, the message sent by the SIP client user agent is a NOTIFY message. A NOTIFY message is used to close out a SIP session between two SIP enabled devices.

application and SIP feature IDs for each respective SIP feature; SIP realm information in which a realm is a server group that has a common authentication for the SIP enabled device receiving the SIP application information; and SIP domain information.

In some embodiments, SIP application configuration information is hardwired into the SIP applications on the SIP client. For example, the SIP application configuration information may be installed on the SIP client at the time of manufacture of the SIP client or by a service provider before sale of the SIP client to the public. SIP application configuration information that is hardwired into the SIP applications may be supplemented or supplanted by new information provided by the configuration server. An indication in the information provided by the configuration server can indicate how the new information should be treated.

In some embodiments, SIP application configuration information is provided to the SIP client from the configuration server. The SIP application configuration information may be transmitted over-the-air (OTA) between the SIP client and the configuration server, over a wired connection between the SIP client and the configuration server or some combination of the two.

In some embodiments, the SIP application configuration information is provided from the configuration server to the SIP client based on a request from the SIP client to the configuration server for the application configuration information. For example, on initialization of the SIP client, a SIP application

Only a single SIP enabled device 310 and a single configuration server 320 are shown connected to the network 330. The system 300 that implements aspects described in the application may include any number of SIP enabled devices 310. Furthermore, there may be more than one configuration server in the system 300. An example of a configuration server will be described below in further detail with reference to Figure 5A. An example of a SIP enabled device will be described below in further detail with reference to Figure 5B.

A method for configuring a SIP enabled device, for example a SIP client or a SIP server, with SIP application configuration information will be described with reference to Figure 4.

Figure 4 describes a method which includes steps performed by both the SIP enabled device and the configuration server, but it is to be understood that Figure 4 also provides methods capable of being performed by each of the SIP enabled device and the configuration server individually. More specifically, steps S410 and S420 executed by the configuration server would be a method performed by the configuration server and steps S430 and S440 executed by the SIP enabled device would be a method performed by the SIP enabled device.

Step S410 involves the configuration server accessing a memory storage comprising SIP application configuration information for a plurality of SIP applications. For each SIP application that SIP application configuration information is maintained, the SIP application configuration information may include some or all of: SIP application location information such

CLAIMS:

1. A method for use on a Session Initiation Protocol (SIP) client that supports multiple SIP applications, the method comprising:

a SIP application requesting selection of a SIP application and a SIP feature from a SIP server comprising at least one SIP application, the at least one SIP application comprising at least one SIP feature;

generating a message comprising a destination address of the SIP server, a source address of the SIP client, a SIP application identifier (ID) for the requested SIP application and a SIP feature identifier (ID) for the requested SIP feature; and

transmitting the message.

2. The method of claim 1 further comprising:

determining if the requested SIP application and SIP feature are authorized to operate on the SIP client; and

generating the message in response to the requested SIP application and SIP feature being authorized to operate on the SIP client.

3. The method of claim 1 or claim 2 wherein generating the message comprises generating:

an INVITE message to start a SIP session between the SIP application of the SIP client (110) and the SIP application identified by the SIP application ID; or

a NOTIFY message to close out a SIP session between the SIP application of the SIP client and the SIP application identified by the SIP application ID.

4. The method of claim 1 or claim 2, wherein generating a message comprises including the SIP application ID and the SIP feature ID in the message as part of an extension of the destination address.

5. The method of claim 4, wherein the destination address is:

a SIP uniform resource identifier 'URI'; an email address; a telephone number; a person's name; or any type of identifier that can be translated to an endpoint address.

6. The method of claim 1 or claim 2 wherein the SIP client is a wireless mobile station.

7. The method of claim 1 or claim 2, wherein generating a message further comprises:

including in the message, an indication to securely identify the SIP client and to allow the SIP client authorized access to the SIP applications that reside on the SIP server, wherein the indication comprises:

a user identification and a password; or
a shared key or certificate.

8. The method of claim 1 or claim 2, wherein generating a message is based on SIP application configuration information stored on the SIP client.

9. The method of claim 1 or claim 2, further comprising:

the SIP server receiving the message;

the SIP server forwarding the message to the SIP application identified by the SIP application ID; and
the SIP application identified by the SIP application ID receiving the message and forwarding the message to the SIP feature identified by the SIP feature ID.

10. A method for use in a Session Initiation Protocol (SIP) server for routing a request for a SIP application and a SIP feature associated with the SIP application, the method comprising:

receiving a message comprising a destination address of the SIP server, a source address of a SIP client which sent the message, a SIP application identifier (ID) associated with the requested SIP application and a SIP feature identifier (ID) associated with the requested SIP feature;

forwarding the message to the SIP application identified by the SIP application ID; and

the SIP application identified by the SIP application ID receiving the message and forwarding the message to the SIP feature identified by the SIP feature ID.

11. A method for use in a Session Initiation Protocol (SIP) enabled device that supports one or more SIP applications, the method comprising:

receiving SIP application configuration information for at least one SIP application, the SIP configuration application information for each SIP application comprising a SIP application identifier (ID) and a list of SIP features associated with the SIP

application, each SIP feature of the list of SIP features having a SIP feature identifier (ID); and

storing the SIP application configuration information locally.

12. The method of claim 11 further comprising the SIP enabled device transmitting a request for SIP application configuration information.

13. The method of claim 11 or claim 12, wherein the SIP enabled device is a SIP client, the method further comprising:

using SIP application configuration information stored locally on the SIP client to provision the SIP client to allow access to only SIP applications and SIP features that are defined in the SIP application configuration information.

14. The method of claim 11 or claim 12, wherein the SIP enabled device is a SIP client, the SIP enabled device receiving SIP application configuration information further comprising:

the SIP client receiving at least one of:

SIP application location information for a SIP server hosting the SIP application; and

security information to access the SIP server hosting the SIP application.

15. The method of claim 14, wherein receiving security information to access the SIP server hosting the SIP application comprises receiving an indication to securely identify the SIP client and to allow authorization by the configuration server to the SIP

application configuration information that resides on the configuration server, wherein the indication comprises:

a user identification and a password; or
a shared key or certificate.

16. The method of claim 14, further comprising:
the SIP client accessing locally stored SIP application configuration information for use in selecting, on a SIP server, a SIP application from a plurality of SIP applications and a SIP feature associated with the SIP application.

17. The method of claim 11 or claim 12, wherein the SIP enabled device is a SIP server and receiving SIP application configuration information for at least one SIP application comprises receiving SIP application configuration information for SIP applications hosted by the SIP server.

18. The method of claim 11 or claim 12, wherein transmitting a request further comprises transmitting an indication to securely identify the SIP enabled device and to allow authorized access to applications and features on a different SIP enabled device, wherein the indication comprises:

a user identification and a password; or
a shared key or certificate.

19. A method for use in a configuration server for configuring a Session Initiation Protocol 'SIP' enabled device that supports one or more SIP applications comprising:

transmitting SIP application configuration information for at least one SIP application, the SIP application configuration information for each SIP application comprising a SIP application identifier (ID) and a list of SIP features associated with the SIP application, each SIP feature of the plurality of SIP features having a SIP feature identifier (ID).

20. The method of claim 19 further comprising:
the configuration server accessing a memory storage comprising SIP application configuration information for a plurality of SIP applications; and
the configuration server selecting SIP application configuration information specific to the SIP enabled device.

21. The method of claim 20 further comprising:
the configuration server receiving a request for SIP application configuration information.

22. The method of claim 21 further comprising authenticating the request based on an indication to securely identify the SIP enabled device and allow authorization by the configuration server to the SIP application configuration information that resides on the configuration server, wherein the indication comprises one of:

a user identification and a password; and
a shared key or certificate.

23. The method of any one of claims 19 to 22, wherein transmitting SIP application configuration

information for at least one SIP application further comprises:

transmitting for the at least one SIP application at least one of:

SIP application location information for a SIP server hosting the SIP application; and

security information to access the SIP server hosting the application.

24. The method of any one of claims 19 to 22 further comprising storing the SIP application configuration information on the configuration server in an encrypted format.

25. A computing device comprising a memory for storing program instructions and a processor for executing said instructions to cause the computing device to perform the steps of the method of claim 1 or claim 2, or the steps of the method of claim 10, or the steps of the method of claim 11 or claim 12 or the steps of the method of claim 19 or claim 20.

26. A computer readable medium storing program instructions executable by a processor of a computing device for causing said computing device to perform the steps of the method of claim 1 or claim 2, or the steps of the method of claim 10, or the steps of the method of claim 11 or claim 12 or the steps of the method of claim 19 or claim 20.

Claims:

1. A method comprising:

a session initiation protocol (SIP) application on a SIP client that supports multiple SIP applications requesting selection of a SIP application and a SIP feature from a SIP server comprising at least one SIP application, the at least one SIP application comprising at least one SIP feature;

determining if the requested SIP application and SIP feature are authorized to operate on the SIP client;

if the requested SIP application and SIP feature are authorized to operate on the SIP client, generating a message comprising a destination address of the SIP server, a source address of the SIP client, a SIP application identifier (ID) for the requested SIP application and a SIP feature identifier (ID) for the requested SIP feature;

the SIP client transmitting the message.

2. The method of claim 1 wherein generating the message comprises generating one of:

an INVITE message to start a SIP session between the SIP application of the SIP client and the SIP application identified by the SIP application ID; and

a NOTIFY message to close out a SIP session between the SIP application of the SIP client and the SIP application identified by the SIP application ID.

3. The method of claim 1, wherein generating a message comprises including the SIP application ID and the SIP feature ID in the message as part of an extension of the destination address.

4. The method of claim 3, wherein the destination address is one of:

a SIP uniform resource identifier (URI); an email address; a telephone number; a person's name; and any type of identifier that can be translated to an endpoint address.

5. The method of claim 1, wherein the SIP client is a wireless mobile station.

6. The method of claim 1, wherein generating a message further comprises:

including in the message, an indication to securely identify the SIP client and to allow the SIP client authorized access to the SIP applications that reside on the SIP server, wherein the indication comprises one of:

a user identification and a password; and

a shared key or certificate.

7. The method of claim 1, wherein generating a message is based on SIP application configuration information stored on the SIP client.

8. The method of claim 1 further comprising:

the SIP server receiving the message;

the SIP server forwarding the message to the SIP application identified by the SIP application ID;

the SIP application identified by the SIP application ID receiving the message and forwarding the message to the SIP feature identified by the SIP feature ID.

9. A non-transitory computer readable storage medium storing program instructions executable by a processor of a computing device for causing said computing device to perform the steps of the method of claim 1.

10. A method for routing a request for a session initiation protocol (SIP) application and a SIP feature associated with the SIP application, the method comprising:

a SIP server receiving a message comprising a destination address of the SIP server, a source address of a SIP client which sent the message, a SIP application identifier (ID) associated with the requested SIP application and a SIP feature identifier (ID) associated with the requested SIP feature;

the SIP server forwarding the message to the SIP application identified by the SIP application ID;

the SIP application identified by the SIP application ID receiving the message and forwarding the message to the SIP feature identified by the SIP feature ID.

11. A non-transitory computer readable storage medium storing program instructions executable by a processor of a computing device for causing said computing device to perform the steps of the method of claim 10.

12. A method for providing a session initiation protocol (SIP) enabled device with SIP application configuration information, the method comprising:

the SIP enabled device receiving SIP application configuration information from a configuration server transmitting SIP application configuration information for at least one SIP application, the SIP application configuration information for each SIP application comprising a SIP application identifier (ID) and a list of SIP features associated with the SIP application, each SIP feature of the list of SIP features having a SIP feature identifier (ID);

the SIP enabled device storing the SIP application configuration information locally.

13. The method of claim 12 further comprising the SIP enabled device transmitting a request for SIP application configuration information.

14. The method of claim 12, wherein the SIP enabled device is a SIP client, the method further comprising:

using SIP application configuration information stored locally on the SIP client to provision the SIP client to allow access to only SIP applications and SIP features that are defined in the SIP application configuration information.

15. The method of claim 12, wherein the SIP enabled device is a SIP client, the SIP enabled device receiving SIP application configuration information further comprising:

the SIP client receiving at least one of:

SIP application location information for a SIP server hosting the SIP application; and

security information to access the SIP server hosting the SIP application.

16. The method of claim 15, wherein receiving security information to access the SIP server hosting the SIP application comprises receiving an indication to securely identify the SIP client and to allow authorization by the configuration server to the SIP application configuration information that resides on the configuration server, wherein the indication comprises one of:

a user identification and a password; and
a shared key or certificate.

17. The method of claim 15, further comprising:

the SIP client accessing locally stored SIP application configuration information for use in selecting, on a SIP server, a SIP application from a plurality of SIP applications and a SIP feature associated with the SIP application.

18. The method of claim 12, wherein the SIP enabled device is a SIP server and receiving SIP application configuration information from a configuration server transmitting SIP application configuration information for at least one SIP application comprises receiving SIP application configuration information for SIP applications hosted by the SIP server.

19. The method of claim 12, wherein transmitting a request further comprises transmitting an indication to securely identify the SIP enabled device and to allow

authorized access to applications and features on a different SIP enabled device, wherein the indication comprises one of:

- a user identification and a password; and
- a shared key or certificate.

20. A non-transitory computer readable storage medium storing program instructions executable by a processor of a computing device for causing said computing device to perform the steps of the method of claim 12.

21. A method for configuring a session initiation protocol (SIP) enabled device comprising:

- a configuration server transmitting SIP application configuration information for at least one SIP application, the SIP application configuration information for each SIP application comprising a SIP application identifier (ID) and a list of SIP features associated with the SIP application, each SIP feature of the plurality of SIP features having a SIP feature identifier (ID).

22. The method of claim 21 further comprising:

- the configuration server accessing a memory storage comprising SIP application configuration information for a plurality of SIP applications;
- the configuration server selecting SIP application configuration information specific to the SIP enabled device.

23. The method of claim 22 further comprising:

the configuration server receiving a request for SIP application configuration information.

24. The method of claim 23 further comprising authenticating the request based on an indication to securely identify the SIP enabled device and allow authorization by the configuration server to the SIP application configuration information that resides on the configuration server, wherein the indication comprises one of:

a user identification and a password; and

a shared key or certificate.

25. The method of claim 21, wherein transmitting SIP application configuration information for at least one SIP application further comprises:

transmitting for the at least one SIP application at least one of:

SIP application location information for a SIP server hosting the SIP application; and

security information to access the SIP server hosting the application.

26. The method of claim 21 further comprising storing the SIP application configuration information on the configuration server in an encrypted format.

27. A non-transitory computer readable storage medium storing program instructions executable by a processor of a computing device for causing said computing device to perform the steps of the method of claim 21.